CHIROPRACTIC CARE OF A SIX-YEAR-OLD CHILD WITH CONGENITAL TORTICOLLIS

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ABSTRACT

Objective: To discuss the care of a patient with congenital torticollis who was treated with chiropractic diversified technique and a chiropractic technique proposed by Frogley and Wallace in a previously published article.

Clinical Features: A 6-year-old female suffered from congenital torticollis with a left head-tilt subsequent to a difficult birth that culminated in a Caesarian section. Computerized tomography of the brain revealed plagiocephaly. Left facial asymmetry was demonstrated on visual observation.

Intervention and Outcome: The patient was treated with a chiropractic adjusting protocol as suggested by Frogley and Wallace and by diversified chiropractic technique. She tolerated the care well and experienced substantial changes in clinical presentation including a distinct improvement in head-tilt. The improvement in head-tilt has been maintained for a period of 1 year.

Conclusion: The conservative chiropractic methodology postulated by Frogley and Wallace in the care of headache patients should be investigated further in its use for congenital torticollis. The positive results observed with this patient lead the authors to recommend that additional studies be undertaken to assess whether these clinical observations can be replicated in other cases of congenital torticollis. (*J Chiropr Med* 2006;5:65–68)

Key Indexing Terms: Chiropractic; Torticollis

INTRODUCTION

The purpose of this article is to report on clinical observations of a case of a 6-year-old female with

congenital torticollis who received chiropractic care. In this case upper cervical Diversified chiropractic technique and a technique proposed by Frogley and Wallace¹ were utilized.

Torticollis presents as lateral flexion and rotation of the head² with the head tilted to the involved side and the chin tilted toward the opposite side of involvement.^{3,4} The head may also be tilted forward or backward.^{5,6} Torticollis is due to contracture of the neck musculature, especially the sternocleidomastoid (SCM)^{7,8} and trapezius muscles.^{4,9} Other involved muscles may be the splenius capitis, scaleni, levator scapulae,^{7,9} semispinalis, and paraspinal erector trunci muscles.⁷ For the purpose of this case report only congenital torticollis will be discussed.

Forty-six thousand infants are born each year in the United States with congenital torticollis,⁴ the third most frequent congenital malformation following hip dysplasia and talipes equinovarus (clubfoot).^{4,8} Congenital torticollis is associated with hip dysplasia,⁴ talipes equinovarus,^{4,10} Erb's Palsy, lower extremity rotary positional anomalies,⁴ scoliosis,^{5,11} decreased cervical rotation,^{3,4} and upper cervical subluxation complexes.^{4,12} Congenital torticollis also occurs commonly with facial asymmetry^{6,8} and plagiocephaly.⁸

Researchers hypothesize that congenital postural torticollis is caused by anomalous fetal skull positioning^{4,8} present in a footling⁸ or breech⁴ presentation and following difficult labors and deliveries.⁸ Congenital muscular torticollis is due to birth trauma⁸ with resultant endomysial fibrosis and shortening² of the SCM muscles. Congenital anomalies of the cervical spine (Klippel-feil syndrome, Sprengel's deformity, and absence of the axis transverse ligament)² may cause congenital muscular torticollis. An additional cause of torticollis may also be genetic defects causing unilateral shortened musculature.⁷

Treatment of torticollis varies with the type of torticollis diagnosed and may consist of passive therapies such as, active positioning,³ traction,^{2,8} physical

therapy,^{7,8} medication,^{13,14} botulinum toxin injections,^{9,13} and chiropractic adjustments.⁵ Cervical pillows and soft cervical collars⁵ may also be helpful. If conservative therapies are ineffective after a reasonable period of time (6–12 months) surgery should be considered.^{7,8} Surgical technique also varies but usually consists of surgical release or partial or total resection of the involved muscle(s).⁷ Surgery should be performed no earlier than 1 year of age^{4,8} and no later than 5 years of age.⁸

CASE REPORT

Three college faculty doctors supervised 28 students and conducted a free chiropractic clinic at a missionary school in Brazil. On the first day of clinic a mother and father brought their 6-year-old daughter to be examined.

The obstetrical history indicated an uneventful pregnancy. The baby was delivered by caesarian section because cervical dilation did not proceed normally. On her seventh day the baby had an epileptic crisis. Even though her parents did not notice the head-tilt until the age of 3 years, it is visible in photographs as early as 1 day of age. An orthopedist was consulted. He stated that the etiology of the head-tilt was solely due to habit and recommended that the parents perform home correction.

One year later another orthopedist was consulted for the head-tilt. He made a diagnosis of congenital torticollis and recommended physical therapy. The patient underwent 15 physical therapy sessions consisting of massage and exercises. Since results were minimal, the orthopedist recommended a soft cervical collar to be worn for a 6-month period beginning 1 week prior to her visit to our clinic. If the cervical collar proved ineffective, surgical intervention was recommended. The parents had also taken her to an ophthalmologist. There was neither abnormality of the orbits nor of visual acuity, as is commonly evident in plagiocephaly.⁸ During the 6 years preceding her visit to the clinic, many diagnostic tests and procedures had been performed. The only significant findings were the diagnosis of epilepsy, an indication of plagiocephaly, and persistent left head-tilt.

The patient entered the clinic the first day wearing a cervical collar. When the collar was removed, there was a noticeable head-tilt to the left. Her parents brought her to the clinic because they were con-

cerned about her obvious head-tilt and about her listlessness, lethargy, and inability to play for more than 1 hour at a time without extreme exhaustion. When examined, it was difficult for the patient to lift her head or to change the posture of her neck to an upright position. The left SCM muscle appeared to be shortened. It was, therefore, difficult to perform passive cervical range-of-motion. SCM muscle spasm was absent bilaterally. The patient was uncooperative when instructed to perform an active range-of-motion. Discomfort was not evident on palpation.

Derifield leg-length analysis¹⁵ indicated the presence of a left cervical syndrome.¹⁵ Palpation of the cervical spine indicated posteriority of the atlas vertebra (C1) posterior arch on the right and laterality of the C1 vertebra on the right indicating an atlas superior right posterior (ASRP) at C1 according to the Diversified chiropractic technique.¹⁵ The examiner also palpated a superior orientation of the spinous process of axis vertebra (C2) with a noticeable decrease in the occipitalaxial spacing. This was consistent with the findings of Frogley and Wallace in their article of headache patients.¹ It should also be noted that the patient experienced headaches at the conclusion of her epileptic seizures. The upper cervical subluxations at C1 and C2 discovered on examination are consistent with the objective findings of congenital torticollis and correlate with the findings of Casey.¹²

The patient was placed in a supine position. The C1 vertebra was adjusted according to Diversified protocol written in the Palmer adjusting manual.¹⁵ The C2 vertebra was contacted on the superior portion of the spinous process in the suboccipital region. Direction of thrust was determined by palpation and motion findings. In order to clinically detect the presence of an elevated cervical spinous process of C2 the doctor places the patient's head and neck in flexion and places a thumb on the prominent axis spinous process in the suboccipital region. A posterior motion is then applied to the forehead with the other hand. This results in a posterior sliding motion and occasionally a sensation of a 'clunk'. This was the procedure used in determining a superior C2 subluxation with this patient. Thrust was applied in a caudal direction as described by Frogley and Wallace.¹

After the chiropractic adjustment was performed, movement of the C1 and C2 vertebrae were im-

proved. There also was an increase in the occipital-axial space. After the vertebrae were adjusted, passive cervical range-of-motion was free and unrestricted. Visualization of the left head-tilt revealed a marked change in head position with a decrease in head-tilt. The parents of the child replaced the cervical collar and the patient exited the clinic.

The patient was adjusted on the following 2 days. Upon visual observation, the left head-tilt was dramatically reduced as compared to the previous day. The patient's mother related that she had removed the cervical collar when they had arrived home the first evening. The patient played with her sister and then went to bed. The next morning the patient played outside for 5 hours without resting. As the mother was watching her daughter playing she began to cry because this was the first time her daughter had enough energy to play for more than 1 hour without extreme exhaustion. She had never witnessed this behavior previously.

On each of these 2 days an adjustment was performed on the C1 vertebrae according to the established protocol. No adjustment was needed to the C2 vertebra since the occipitalaxial space had been maintained and the SCM musculature remained relaxed and range-of-motion of the C2 vertebra was unrestricted. The parents were instructed to bring their daughter to see the chiropractor on his next visit to the area.

The child was examined 8 months later and again at 1 year. The patient was undergoing physical therapy to re-educate the cervical musculature, the decrease in left head-tilt had been maintained, and surgery had not been performed as was previously recommended by the child's orthopedist. No adjustment was needed to the C2 vertebra since the occipital-axial spacing had been maintained and the SCM musculature remained relaxed and range-of-motion of the C2 vertebra was unrestricted.

DISCUSSION

The condition of torticollis is rarely primary and it is essential to do a thorough examination to rule out underlying pathology. If results are not elicited with conservative therapy within 6–12 months, surgery should be considered no earlier than 1 year of age^{4,8} and no later than 5 years of age.⁸ If results were not forthcoming following use of the soft collar with the

patient described in this report, surgery was recommended. The use of a soft cervical collar is beneficial in some cases of torticollis.⁵ The patient's orthopedist prescribed the use of a soft cervical collar for a six-month-period preceding surgical intervention. The patient had been wearing a soft cervical collar for one-week prior to her first visit. The purpose of the soft cervical collar in this case was to attempt correction of the head-tilt.

This patient exhibited upper cervical subluxation complexes at the atlantooccipital and atlantoaxial joints. Facial asymmetry and plagiocephaly were also present. According to Frogley and Wallace,¹ "The upper cervical vertebrae become fixed in normal motion by elevated cervical spinal processes resulting from kyphotic posture." One of the causal factors with the propensity to alter this normal cervical spinal curve is excessive contraction of cervical musculature as is reported in congenital torticollis. It is postulated that the kyphotic cervical position is due to differences in the C2-C3 zygapophyseal joints in that they lie ventral to the emerging spinal nerves. A study by Gutsman and Roesner as referenced in Frogley and Wallace's article¹, notes that the second cervical vertebra frequently becomes extremely fixed into a kyphotic posture. Frogley and Wallace hypothesized that with a kyphotic cervical curve, retroflexion of the occiput and axis relative to the atlas occurs. The adjustment procedure chosen by Frogley and Wallace theoretically restores motion in the vertebral segments and improves the kyphotic cervical postural curve in a movement back to normalcy.

This case is significant because cases of congenital torticollis have responded favorably while under chiropractic care.^{2,4} Results observed with this child are similar to those reported in previous literature on this subject^{4,10} and warrant further investigation. Additionally, Frogley and Wallace's article described chiropractic adjustment of the C2 vertebra in a caudal direction in the care of headaches, but this protocol has not been researched with congenital torticollis.

In this case the patient's cervical vertebrae were manipulated on 3 consecutive days. It was assumed that these 3 days of chiropractic manipulations were adequate to produce the positive results seen. However, generalizability of outcomes for this patient may be restricted due to the limited time frame in which chiropractic manipulations were performed.

It is hoped that continued chiropractic manipulations to the upper cervical vertebrae would continue to ameliorate the left head-tilt symptomatology. The parents were instructed to bring their daughter to the chiropractor on subsequent visits to receive additional chiropractic care.

CONCLUSIONS

The positive results seen with this patient point to a successful application of Frogley and Wallace's adjusting procedure to a child with congenital torticollis. Additional research is recommended regarding the pressure gradients involved with altered kinematics of the cervical spine so that this adjusting method can be applied with a larger sample. Due to the case study nature of this research the results are not generalizable with other cases of congenital torticollis. However, the positive results experienced with this patient, lead the authors to recommend that additional studies be undertaken to investigate the results of chiropractic manipulation on congenital torticollis.

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